

REVIEW

Plant Biology of the Basin and Range. By C. B. OSMOND, L. F. PITELKA, and G. M. HEDY (eds.). 1990. Springer-Verlag, Berlin. xii + 375 pages. ISBN 3-54051219-5.

Plant Biology of the Basin and Range is a valuable and well-written collection, and it fulfills the intent of its editors to review the literature with an emphasis on physiological plant ecology. The book has nine chapters, most of these with multiple authors, and the subject of plant biology is approached from a variety of temporal and spacial scales.

The opening chapter briefly considers human impact on Great Basin ecosystems, although the treatment is more an intriguing introduction to the topography and history of the region than a full review of the subject. The second chapter gives a rather thorough overview of the climate of the Great Basin in the context of broad regional weather patterns across the North American Continent. The figures and text put the climate of the Great Basin in perspective with the rest of the continent and consider a large number of parameters ranging from wind, temperature, and precipitation to variability of weather and the impact of anthropogenic pollutants. Chapter 3 is by Dwight Billings, to whom the book is also dedicated, and considers the floristics and vegetation zones of mountains throughout North America. After a thorough discussion of slope effects and regional variation, Billings points out that while the Cascades, Rocky Mountains, and Appalachians have major floristic affinities with the transcontinental taiga, the forest trees of the Great Basin show more floristic affinities with the Southern Rocky Mountains and mountains of Mexico. Chapters 4 through 8 deal more specifically with ecophysiological studies and for many readers will represent the heart of the book. A chapter on high elevation forests stresses microsite and plant habit and morphology as key factors affecting water relations and productivity along elevational gradients. The importance of an unusual bedrock material and its influence on contrasting vegetation types is explored in Chapter 5, by DeLucia and Schlesinger. Both water and nutrient relations are analyzed for an impact on the type of vegetation developed on contrasting soils. Chapter 6 by Smith and Nowak and Chapter 7 by Dobrowolski, Caldwell, and Richards provide particularly valuable reviews of productivity and water relations from the perspective of shoots and roots, respectively. The concluding chapters return to broad-scale considerations with an analyses of long-term temporal patterns. Chapter 8, "Isotopic Assessment of Vegetation Changes," actually has little data directly on the Great Basin and is more interesting for its discussion of techniques of assessing historical plant community succession. The last chapter considers the sensitivity of the internal drainage basins to subtle shifts in climate. Past climatic fluctuations are evaluated extensively, and it is concluded that the Great Basin might be extremely sensitive to future climatic changes.

While the topics covered are covered well, many aspects of plant biology such as plant-animal interactions, herbivory, and pollination ecology are barely touched upon and must be sought elsewhere, while others, such as population biology, are not covered so extensively as is the physiological literature. Several chapters, such as that by Dobrowolski et al. on basin hydrology and plant root systems, provide insightful and thorough syntheses of topics that are rarely treated so well. The various contributions are generally well written and informative, and the book represents a valuable summary of data, techniques, and theory as they apply to plant physiological ecology in the Great Basin. Typographical errors are few, and the presentation of text is attractive and easy to read. Color illustrations are numerous, and graphical data presentations are abundant and clear. I recommend the volume strongly for those

interested in plant adaptations and physiological behavior, and also for those interested in broad ecosystem processes.

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ANNOUNCEMENT

MT. TAMALPAIS—TO BURN OR NOT TO BURN?

A Vegetation Management Plan is being developed for Mt. Tamalpais by public land owners in Marin County. The Tamalpais Ecological Committee has been formed as a biological board of trustees to oversee and “watchdog” the process. At issue is whether there should be prescribed burning on the Mountain and, if so, why, where, when and how? The Committee invites your input by writing to TEC, % Dr. Edward S. Ross, Entomology Department, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118, (415) 383-5343, FAX (415) 381-9214.